

**Best Management Practices
to Mitigate Risk of Entrance and Spread of Vessel-Borne Invasive Organisms in San Francisco Bay and Delta**

Introduction / Statement of Purpose

For the first time in its nearly 160-year history, the America's Cup regatta will be contested in the spectacular natural arena of San Francisco Bay. After a series of international racing events during 2011 and 2012, the Louis Vuitton Cup (challenger elimination series) and the 34th America's Cup Finals will be held in San Francisco in the fall of 2013. We now welcome boaters from the world over to join us for this historic event, and to celebrate San Francisco Bay's long heritage of maritime recreation, commerce, and competition.

The immaculate hulls of the state-of-the-art AC34 multi-hull boats enable the tight pointing angles, nimble mark roundings, and screaming reaches and runs that make each race an unforgettable spectator experience. Your boat, too, benefits from a clean bottom. Hull fouling degrades sailing performance and increases fuel consumption. Organisms adhering to your boat can damage your hull, systems and equipment. Introduced by visiting boats, invasive species can spread throughout the Bay, where they foul berths, moorings and structures, displace native plants and animals, threaten public health, and upset the local ecology.

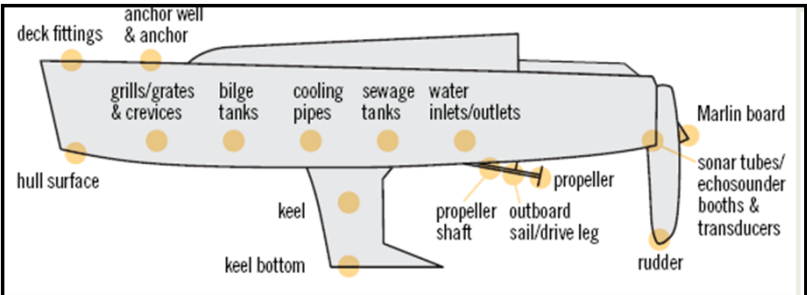
San Francisco Bay is a precious natural estuary recovering from more than a century of ignorance, abuse and neglect. Don't let invasive pests clinging to your boat or gear cause new and irreparable harm. Clean your hull, equipment and toys before you bring your boat to San Francisco Bay; and make sure you don't take non-native species home when the racing and parties are done. After 160 years, let's make sure invasive marine pests aren't part of this show.

I. Private/commercial vessels arriving on their own hulls from outside the Golden Gate

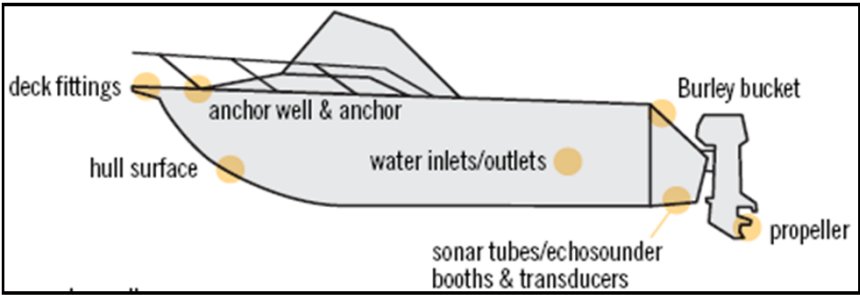
BEFORE DEPARTING HOME WATERS FOR SAN FRANCISCO BAY

1. Out-of-Water Cleaning

- ▶ If the boat has been in the water for a year or more, it should be hauled out and cleaned, and may require new anti-fouling coating
- ▶ Clean hull and all underwater surfaces within one month before entering San Francisco Bay
- ▶ Hulls coated with Biocide-Free Non-Toxic paints are easily fouled, and require frequent cleaning
- ▶ Haul vessel at a qualified professional boatyard or at a dry location away from the Bay or tributaries
- ▶ Do not remove fouling from the hull at boat ramps or anywhere that removed organisms can get back into waterways.
- ▶ Manually remove large material (molluscs, tunicates, sponges, algae, grasses, etc) from hull, appendages, intakes, propellers, etc.
- ▶ Collect and dispose of all large material either for compost or for transport to a landfill
- ▶ High-pressure waterblast, or hose and scrub the hull thoroughly, down to the underlying anti fouling, barrier coat or hull surface
- ▶ Contain hull wash water and residual material cleaned from the hull; allow none of it back in the water
- ▶ Inspect and clean intakes, outlets, and appendages that can retain water and harbor invasive marine pests
- ▶ Clean/treat internal seawater systems
- ▶ Inspect and clean topsides and decks as well as the vessel's underwater body
- ▶ Partial inspection and cleaning checklist:
 - Vessel Exterior:** Entire hull, cockpit and deck, transom wall, ballast tanks, ropes and lines, anchors, lights, pitot tube, depth sounders, trim tabs, cavitation plates, thru-hull fittings, depth transducers, water intakes and outlets, thrusters, keel and keel bulbs
 - Propulsion and Control:** Entire exterior housing, propeller, propeller shaft, propeller shaft support, propeller guards, propulsion units, lower unit, gimbal area, water intakes and outlets
 - Equipment and Accessories:** Rods, nets, downriggers and other fishing equipment, bait containers and live wells, trolling motors, waterfowl decoys and camouflage blinds, lines and ropes, float belts, life jackets, float cushions, clothing and footwear, fenders, dock guards, inner tubes and other inflatables, equipment lockers, internal ballast tanks, water skis, tow ropes and ski gloves



SAILING VESSELS



POWER VESSELS

2. Protection

- ▶ Hulls that stay in the water (not trailered or dry-sailed) should have a suitable bottom coating for the location and type of their use
- ▶ Renew hull paint at intervals recommended by the paint manufacturer, or when the coating is damaged or abraded
- ▶ Use multi-season coatings on hulls that stay in the water throughout the year
- ▶ Do not apply a hard 'racing' hull coating to a vessel that will not be aggressively and frequently operated, or will be moored for extended periods
- ▶ Ensure intakes, outlets, and appendages are thoroughly prepared and coated
- ▶ Dispose of all residual paint, solvents, protective gear, tools and equipment as toxic waste

3. In-Water Inspection and Cleaning

- ▶ Vessel should be regularly inspected and cleaned by a diver to prevent more than a light slime from forming
- ▶ When fouling affects vessel performance a wipe down must be performed. This can occur in as little as one week.
- ▶ Do not keep unpainted hulls in water for extended periods; fouling accelerates, cleaning must be more frequent, and hull material can be damaged
- ▶ For unpainted vessels, clean hull, propeller, running gear, thru-hulls, instruments and anodic or cathodic protection upon formation of slime layer
- ▶ Clean vessel on a shorter schedule during warm water season, when growth accumulates at a higher rate
- ▶ Do not clean the vessel in the water if the organisms on the vessel come from a different region
- ▶ Suspend cleaning practices on new painted bottoms for at least 60 days
- ▶ Employ divers trained and certified to perform hull cleaning according to accepted Best Management Practices (BMPs)
- ▶ Scrub the hull using the least abrasive method possible
- ▶ Do not use abrasive cleaning materials, tools or methods that visibly release bottom paint into the water
- ▶ Refrain from cleaning any paint system in the water with wet sand paper
- ▶ Minimize the number of cleaning passes made on the painted areas of the hull.
- ▶ Do not sand or strip hull paint underwater
- ▶ Diver must inform owner when bottom paint reaches a “Poor” condition, and mechanical bottom cleaning should be discontinued
- ▶ Report all paint problems to owner, supervisor or coating manufacturer (chips, flaking, cracks, etc.)
- ▶ Clear growth completely from water supply and discharge lines, filter screens, pumps, valves, and associated parts
- ▶ Treat internal seawater systems by flushing with fresh water or an environmentally safe chemical treatment
- ▶ Drain all live wells, bait tanks, and bilge water
- ▶ Clean hull and underwater surfaces if relocating vessel to a new region of the SF Bay-Delta system for more that 1 month

BEFORE DEPARTING SAN FRANCISCO BAY

4. If the vessel has been in San Francisco Bay for one month or longer:

- ▶ Complete BMP 1. Out-Of-Water Cleaning

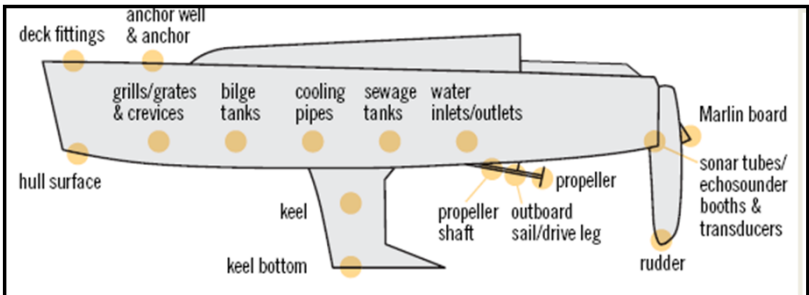
5. If the vessel has been in San Francisco Bay for less than one month:

- ▶ Complete BMP 3. In-Water Inspection and Cleaning

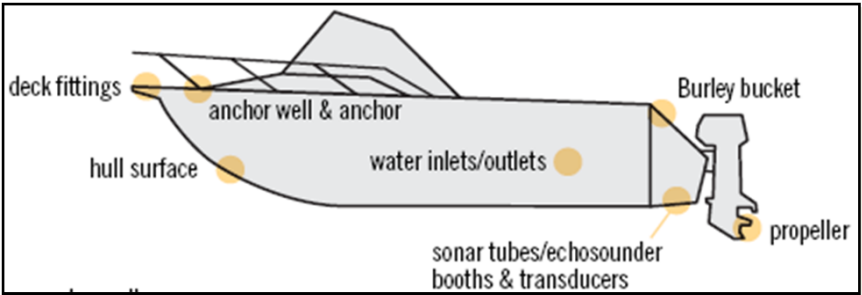
II. Private/commercial non-trailerred vessels arriving on their own hulls from within the Bay and Delta
BEFORE THE REGATTAS

1. Out-of-Water Cleaning

- ▶ If the boat has been in the water for a year or more, it should be hauled out and cleaned, and may require new anti-fouling coating
- ▶ Clean hull and all underwater surfaces within one month before entering San Francisco Bay
- ▶ Hulls coated with Biocide-Free Non-Toxic paints are easily fouled, and require frequent cleaning
- ▶ Haul vessel at a qualified professional boatyard or at a dry location away from the Bay or tributaries
- ▶ Do not remove fouling from the hull at boat ramps or anywhere that removed organisms can get back into waterways.
- ▶ Manually remove large material (molluscs, tunicates, sponges, algae, grasses, etc) from hull, appendages, intakes, propellers, etc.
- ▶ Collect and dispose of all large material either for compost or for transport to a landfill
- ▶ High-pressure waterblast, or hose and scrub the hull thoroughly, down to the underlying anti fouling, barrier coat or hull surface
- ▶ Contain hull wash water and residual material cleaned from the hull; allow none of it back in the water
- ▶ Inspect and clean intakes, outlets, and appendages that can retain water and harbor invasive marine pests
- ▶ Clean/treat internal seawater systems
- ▶ Inspect and clean topsides and decks as well as the vessel's underwater body
- ▶ Partial inspection and cleaning checklist:
 - Vessel Exterior:** Entire hull, cockpit and deck, transom wall, ballast tanks, ropes and lines, anchors, lights, pitot tube, depth sounders, trim tabs, cavitation plates, thru-hull fittings, depth transducers, water intakes and outlets, thrusters, keel and keel bulbs
 - Propulsion and Control:** Entire exterior housing, propeller, propeller shaft, propeller shaft support, propeller guards, propulsion units, lower unit, gimbal area, water intakes and outlets
 - Equipment and Accessories:** Rods, nets, downriggers and other fishing equipment, bait containers and live wells, trolling motors, waterfowl decoys and camouflage blinds, lines and ropes, float belts, life jackets, float cushions, clothing and footwear, fenders, dock guards, inner tubes and other inflatables, equipment lockers, internal ballast tanks, water skis, tow ropes and ski gloves



SAILING VESSELS



POWER VESSELS

2. Protection

- ▶ Hulls that stay in the water (not trailerred or dry-sailed) should have a suitable bottom coating for the location and type of their use
- ▶ Renew hull paint at intervals recommended by the paint manufacturer, or when the coating is damaged or abraded
- ▶ Use multi-season coatings on hulls that stay in the water throughout the year
- ▶ Do not apply a hard 'racing' hull coating to a vessel that will not be aggressively and frequently operated, or will be moored for extended periods
- ▶ Ensure intakes, outlets, and appendages are thoroughly prepared and coated
- ▶ Dispose of all residual paint, solvents, protective gear, tools and equipment as toxic waste

3. In-Water Inspection and Cleaning

- ▶ Vessel should be regularly inspected and cleaned by a diver to prevent more than a light slime from forming
- ▶ When fouling affects vessel performance a wipe down must be performed. This can occur in as little as one week.
- ▶ Do not keep unpainted hulls in water for extended periods; fouling accelerates, cleaning must be more frequent, and hull material can be damaged
- ▶ For unpainted vessels, clean hull, propeller, running gear, thru-hulls, instruments and anodic or cathodic protection upon formation of slime layer
- ▶ Clean vessel on a shorter schedule during warm water season, when growth accumulates at a higher rate
- ▶ Do not clean the vessel in the water if the organisms on the vessel come from a different region
- ▶ Suspend cleaning practices on new painted bottoms for at least 60 days
- ▶ Employ divers trained and certified to perform hull cleaning according to accepted Best Management Practices (BMPs)
- ▶ Scrub the hull using the least abrasive method possible
- ▶ Do not use abrasive cleaning materials, tools or methods that visibly release bottom paint into the water
- ▶ Refrain from cleaning any paint system in the water with wet sand paper
- ▶ Minimize the number of cleaning passes made on the painted areas of the hull.
- ▶ Do not sand or strip hull paint underwater
- ▶ Diver must inform owner when bottom paint reaches a “Poor” condition, and mechanical bottom cleaning should be discontinued
- ▶ Report all paint problems to owner, supervisor or coating manufacturer (chips, flaking, cracks, etc.)
- ▶ Clear growth completely from water supply and discharge lines, filter screens, pumps, valves, and associated parts
- ▶ Treat internal seawater systems by flushing with fresh water or an environmentally safe chemical treatment
- ▶ Drain all live wells, bait tanks, and bilge water
- ▶ Clean hull and underwater surfaces if relocating vessel to a new region of the SF Bay-Delta system for more that 1 month

AFTER THE REGATTAS

4. If the vessel has been in San Francisco Bay for one month or longer:

- ▶ Complete BMP 1. Out-Of-Water Cleaning

5. If the vessel has been in San Francisco Bay for less than one month:

- ▶ Complete BMP 3. In-Water Inspection and Cleaning

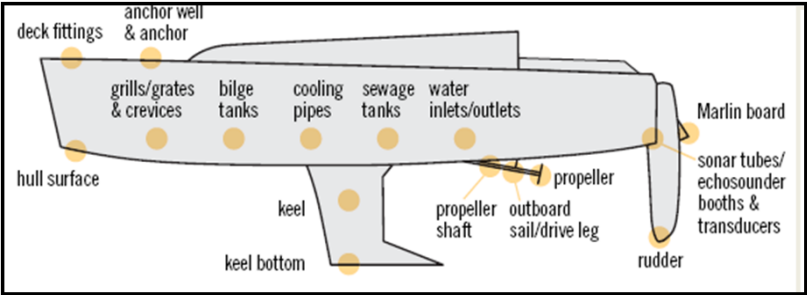
III. Trailered, trucked or otherwise transported private/commercial vessels from anywhere

BEFORE TRANSPORTING YOUR BOAT TO SAN FRANCISCO BAY

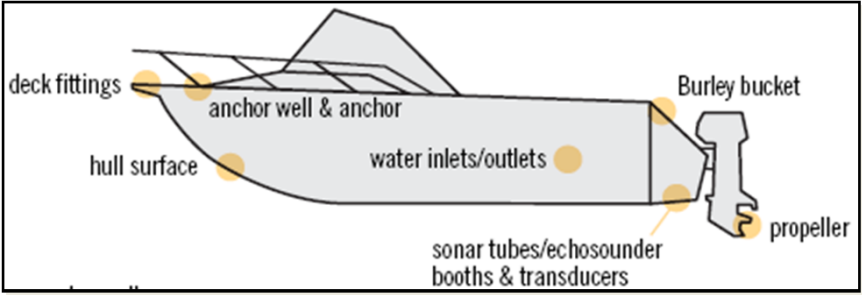
1. Cleaning

- ▶ Drain, inspect, clean, and dry vessel upon leaving the water, per California DFG, DWR, CDFA, and DBW checklists
- ▶ Move the vessel away from launch ramps or docks for inspection and cleaning
- ▶ Do not remove fouling from the hull at boat ramps or anywhere that removed organisms can get back into waterways.
- ▶ Manually remove large material (molluscs, tunicates, sponges, algae, grasses, etc) from hull, appendages, intakes, propellers, etc.
- ▶ Collect and dispose of all large material either for compost or for transport to a landfill
- ▶ Remove all plants and mud from vessel, trailer, tow vehicle and equipment, and dispose of them either for compost or for transport to a landfill.
- ▶ Do not leave any foreign material removed from the vessel, trailer, tow vehicle or equipment on the ground or dump it in any waterway.
- ▶ Dispose of vessel sewage and bilge water at a pump-out facility or dump station.
- ▶ Dispose of trash and residual fishing bait in trash receptacles; do not take them home, leave them on the ground or dump them in any waterway.
- ▶ Drain water from vessel (pull all plugs) and dry all areas, including motor, cooling system, wells, tanks, bladders, bilges, and outboard units.
- ▶ Drain water from every internal ballast tank system
- ▶ On sailboats, inspect centerboard trunk, rudder and transom, keel and fittings
- ▶ Drain and dry all water systems that use external water, including air conditioning, personal sanitation, and washdown systems.
- ▶ Clear growth completely from water supply and discharge lines, filter screens, pumps, valves, and associated parts
- ▶ Partial inspection and cleaning checklist:

- Vessel Exterior:** Entire hull, cockpit and deck, transom wall, ballast tanks, ropes and lines, anchors, lights, pitot tube, depth sounders, trim tabs, cavitation plates, thru-hull fittings, depth transducers, water intakes and outlets, thrusters, keel and keel bulbs
- Propulsion and Control:** Entire exterior housing, propeller, propeller shaft, propeller shaft support, propeller guards, propulsion units, lower unit, gimbal area, water intakes and outlets
- Equipment and Accessories:** Rods, nets, downriggers and other fishing equipment, bait containers and live wells, trolling motors, waterfowl decoys and camouflage blinds, lines and ropes, float belts, life jackets, float cushions, clothing and footwear, fenders, dock guards, inner tubes and other inflatables, equipment lockers, internal ballast tanks, water skis, tow ropes and ski gloves



SAILING VESSELS



POWER VESSELS

- ▶ Wash hull, trailer, tow vehicle, bilge, and exposed surfaces with high-pressure, hot water (140° F (60° C) at hull / 155° (68° C) at nozzle)
- ▶ Clean hull, propeller, running gear, thru-hulls, instruments and anodic or cathodic protection of any residual slime layer, vegetation or hard growth
- ▶ Clean intakes, outlets, and appendages that can retain water and harbor invasive marine pests
- ▶ Inspect and clean topsides and decks as well as the vessel's underwater body
- ▶ Contain hull wash water and residual material cleaned from the hull; allow none of it back in the water
- ▶ Treat internal water systems by flushing with fresh water or an environmentally safe chemical treatment
- ▶ Inspect, clean and dry all anchors, lines, life jackets, water skis or other items that have been in the water
- ▶ Inspect, clean and dry fishing and recreational gear, personal belongings, clothing, and footwear that have come in contact with the water.
- ▶ Let vessel dry for five to 30 days, depending on the weather, before launching
- ▶ All areas must be dry (including live wells) and clear of debris
- ▶ Inspect all exposed surfaces on vessel, trailer and tow vehicle
- ▶ Inspect hull for rough or gritty spots, which may be young organisms that have settled on the vessel and cannot be seen.
- ▶ Thoroughly inspect all gear used in salt water and flushed in fresh water before using them in a new location.
- ▶ Clean hull and underwater surfaces if relocating vessel to a new region of the SF Bay-Delta system for more that 1 month

2. Protection

- ▶ Hulls that stay in the water (not trailered or dry-sailed) should have a suitable bottom coating for the location and type of their use
- ▶ Renew hull paint at intervals recommended by the paint manufacturer, or when the coating is damaged or abraded
- ▶ Use multi-season coatings on hulls that stay in the water throughout the year
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BEFORE DEPARTING SAN FRANCISCO BAY

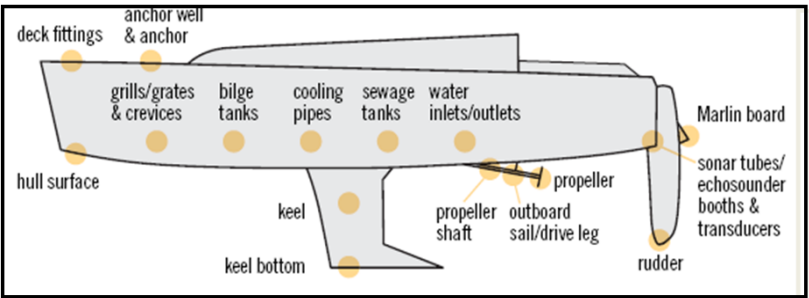
3. Complete BMP 1. Cleaning

IV. "Super" Yachts

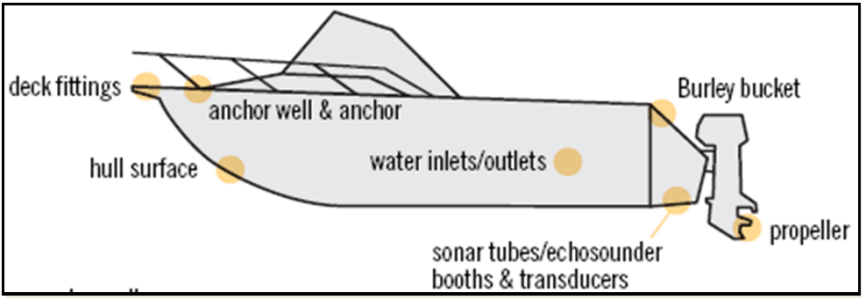
BEFORE DEPARTING HOME WATERS FOR SAN FRANCISCO BAY

1. Out-of-Water Cleaning

- ▶ If the boat has been in the water for a year or more, it should be hauled out and cleaned, and may require new anti-fouling coating
- ▶ Clean hull and all underwater surfaces within one month before entering San Francisco Bay
- ▶ Hulls coated with Biocide-Free Non-Toxic paints are easily fouled, and require frequent cleaning
- ▶ Haul vessel at a qualified professional boatyard or at a dry location away from the Bay or tributaries
- ▶ Do not remove fouling from the hull at boat ramps or anywhere that removed organisms can get back into waterways.
- ▶ Manually remove large material (molluscs, tunicates, sponges, algae, grasses, etc) from hull, appendages, intakes, propellers, etc.
- ▶ Collect and dispose of all large material either for compost or for transport to a landfill
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- ▶ Inspect and clean intakes, outlets, and appendages that can retain water and harbor invasive marine pests
- ▶ Clean/treat internal seawater systems
- ▶ Inspect and clean topsides and decks as well as the vessel's underwater body
- ▶ Partial inspection and cleaning checklist:
 - Vessel Exterior:** Entire hull, cockpit and deck, transom wall, ballast tanks, ropes and lines, anchors, lights, pitot tube, depth sounders, trim tabs, cavitation plates, thru-hull fittings, depth transducers, water intakes and outlets, thrusters, keel and keel bulbs
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 - Equipment and Accessories:** Rods, nets, downriggers and other fishing equipment, bait containers and live wells, trolling motors, waterfowl decoys and camouflage blinds, lines and ropes, float belts, life jackets, float cushions, clothing and footwear, fenders, dock guards, inner tubes and other inflatables, equipment lockers, internal ballast tanks, water skis, tow ropes and ski gloves



SAILING VESSELS



POWER VESSELS

2. Protection

- ▶ Hulls that stay in the water (not trailered or dry-sailed) should have a suitable bottom coating for the location and type of their use
- ▶ Renew hull paint at intervals recommended by the paint manufacturer, or when the coating is damaged or abraded
- ▶ Use multi-season coatings on hulls that stay in the water throughout the year
- ▶ Do not apply a hard 'racing' hull coating to a vessel that will not be aggressively and frequently operated, or will be moored for extended periods
- ▶ Ensure intakes, outlets, and appendages are thoroughly prepared and coated
- ▶ Dispose of all residual paint, solvents, protective gear, tools and equipment as toxic waste

3. In-Water Inspection and Cleaning

- ▶ Vessel should be regularly inspected and cleaned by a diver to prevent more than a light slime from forming
- ▶ When fouling affects vessel performance a wipe down must be performed. This can occur in as little as one week.
- ▶ Do not keep unpainted hulls in water for extended periods; fouling accelerates, cleaning must be more frequent, and hull material can be damaged
- ▶ For unpainted vessels, clean hull, propeller, running gear, thru-hulls, instruments and anodic or cathodic protection upon formation of slime layer
- ▶ Clean vessel on a shorter schedule during warm water season, when growth accumulates at a higher rate
- ▶ Do not clean the vessel in the water if the organisms on the vessel come from a different region
- ▶ Suspend cleaning practices on new painted bottoms for at least 60 days
- ▶ Employ divers trained and certified to perform hull cleaning according to accepted Best Management Practices (BMPs)
- ▶ Scrub the hull using the least abrasive method possible
- ▶ Do not use abrasive cleaning materials, tools or methods that visibly release bottom paint into the water
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- ▶ Minimize the number of cleaning passes made on the painted areas of the hull.
- ▶ Do not sand or strip hull paint underwater
- ▶ Diver must inform owner when bottom paint reaches a "Poor" condition, and mechanical bottom cleaning should be discontinued
- ▶ Report all paint problems to owner, supervisor or coating manufacturer (chips, flaking, cracks, etc.)
- ▶ Clear growth completely from water supply and discharge lines, filter screens, pumps, valves, and associated parts
- ▶ Treat internal seawater systems by flushing with fresh water or an environmentally safe chemical treatment
- ▶ Drain all live wells, bait tanks, and bilge water
- ▶ Clean hull and underwater surfaces if relocating vessel to a new region of the SF Bay-Delta system for more that 1 month

BEFORE DEPARTING SAN FRANCISCO BAY

4. If the vessel has been in San Francisco Bay for one month or longer:

- ▶ Complete BMP 1. Out-Of-Water Cleaning

5. If the vessel has been in San Francisco Bay for less than one month:

- ▶ Complete BMP 3. In-Water Inspection and Cleaning